DMS-100 24VAC to 48VDC Fan Tray Conversion Kit - Installation Guide

INSTALLATION GUIDE FOR DMS-100 NT3X90AA 24VAC to 48VDC FAN TRAY CONVERSION KITS

PN # TFT-DMS48KIT2 & TFT-DMS48KIT3

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1. Kit Contents

A. BUBBLE PACKAGES (QTY OF 5)

(1) TF-DMS05P, DMS 48V Fan
(1) Bag w/ Mounting Hardware

QTY OF 5

B. BOX w/ SENSOR KITS * (QTY OF 1)

(5) TF-DMS05S, DMS Sensors & Brackets
(5) Bags w/ Mounting Hardware

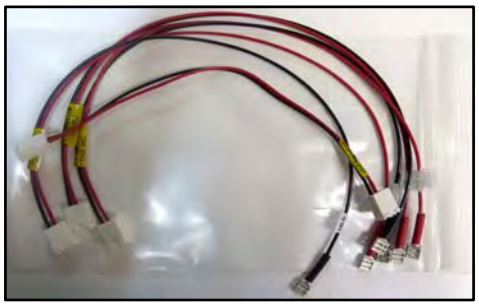
** (Included w/ # TFT-DMS48KIT2)*

C. BUBBLE PACKAGE (QTY OF 1)

(1) Fan Control Board
(1) Bag w/ Mounting Hardware & Zip Ties

D. BAG w/ 48V POWER LEADS (QTY OF 1)

(1) TFT-DMSAC1M; Main Power "From PDC"
(1) TFT-DMSAC1N; Power "To Next"
(1) TFT-DMSAC1P; Power "From Previous"
(1) TFT-DMSACNP; Jumper Cable *("single unit" option)*

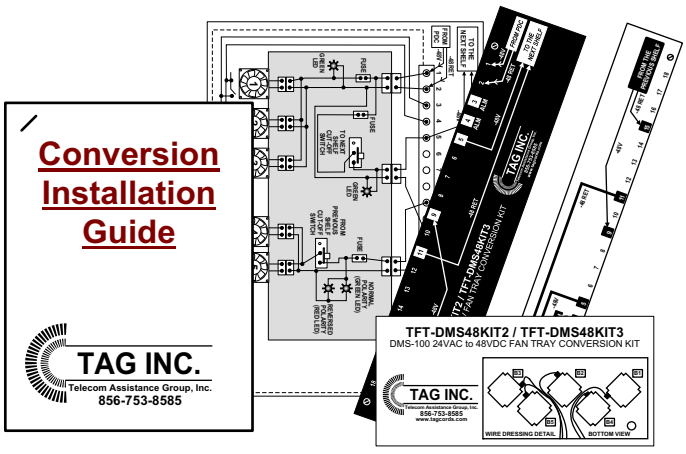


E. BAG w/ LABELS (QTY OF 1)

(1) Wire Dressing Label
(1) Internal Wiring Block Label
(1) External Wiring Block Label
(1) Fan Control Board Schematic Label

F. PRINTED GUIDE (QTY OF 1)

(1) 590068, Installation Guide



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2. Tools Needed:

(1) 5/16" Nut Driver

(1) 1/4" Nut Driver

(1) Phillips Screwdriver

(1) Flat Head Screwdriver

(1) Digital Volt Meter

*The procedure on the following pages details removing **OLD 24VAC Fans** & Sensors on a Nortel DMS-100 NT3X90AA / NT3X90AB Fan Unit & replacing them with **NEW 48VDC Fans** & Sensors.*

3. Identify the first failed 24VAC Fan Tray:

(Note: For typical daisy chain layout, see the following page)

a. Starting at the NT3X90AB of the daisy chain; use a digital volt meter with AC selection to identify that the 24VAC current is present on the back of the tray. *(the lugs on 9 & 15, 5 & 11)*

(if no voltage present, you have identified the first failure point of 24VAC power inverter)

b. Following the 24VAC feed to the next tray; validate that you have 24VAC presence on lugs 9 & 15.

c. On the same tray use your volt meter to check for 24VAC on lugs 5 & 11.

Continued on next page ....

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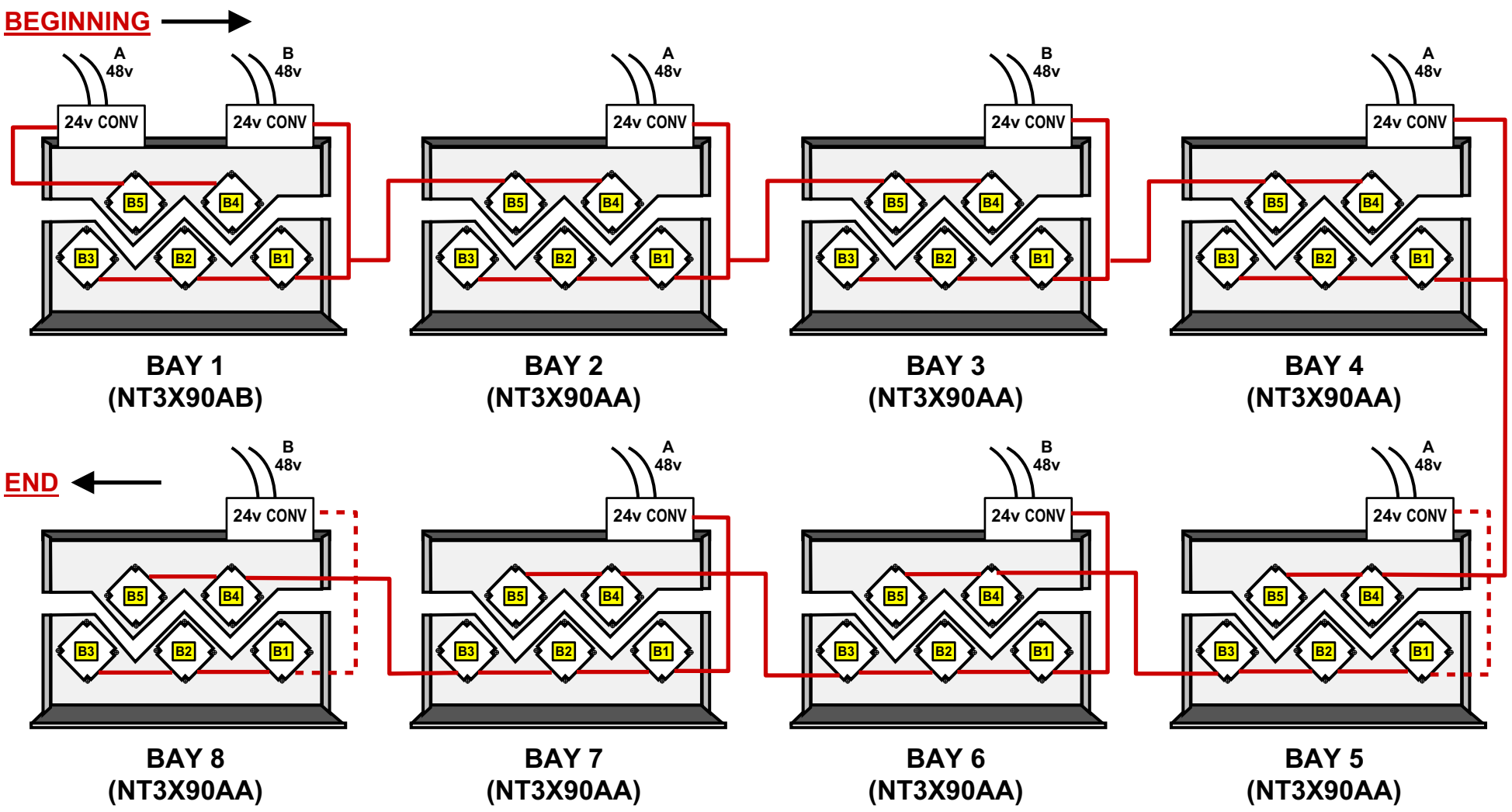
3. ... Continued from previous page

d. Identify which bays need to be replaced. *(if replacing all trays with 48V conversion kits, disregard process for keeping 24VAC string)*

Daisy Chain Configuration



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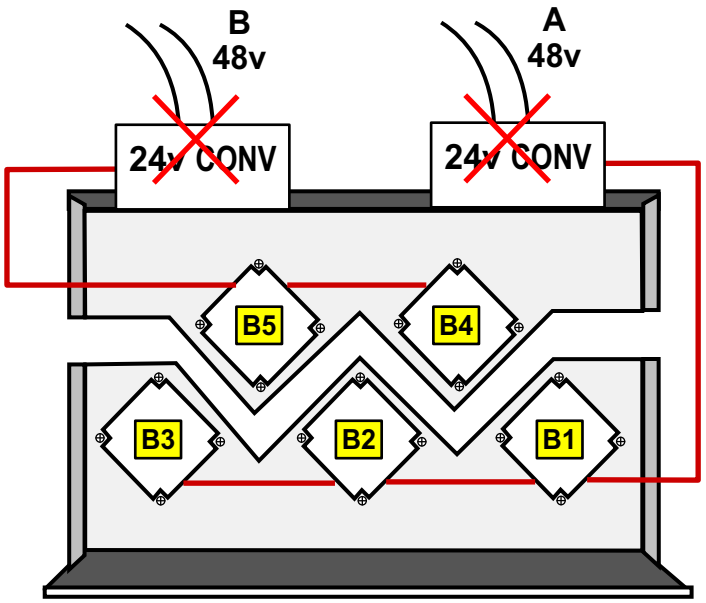
4. NT3X90AB Conversion w/ (2) 24VAC Inverters:

Dual feed 48VDC wiring from PDC
- (1,2) remove fuse from PDC.
- (17, 18) remove & leave out fuse from PDC.

BAY 1
(NT3X90AB)



REMOVE ALL 24VAC INVERTERS
& REPLACE ALL FANS w/ NEW 48V FANS

BAY 1
(NT3X90AB)

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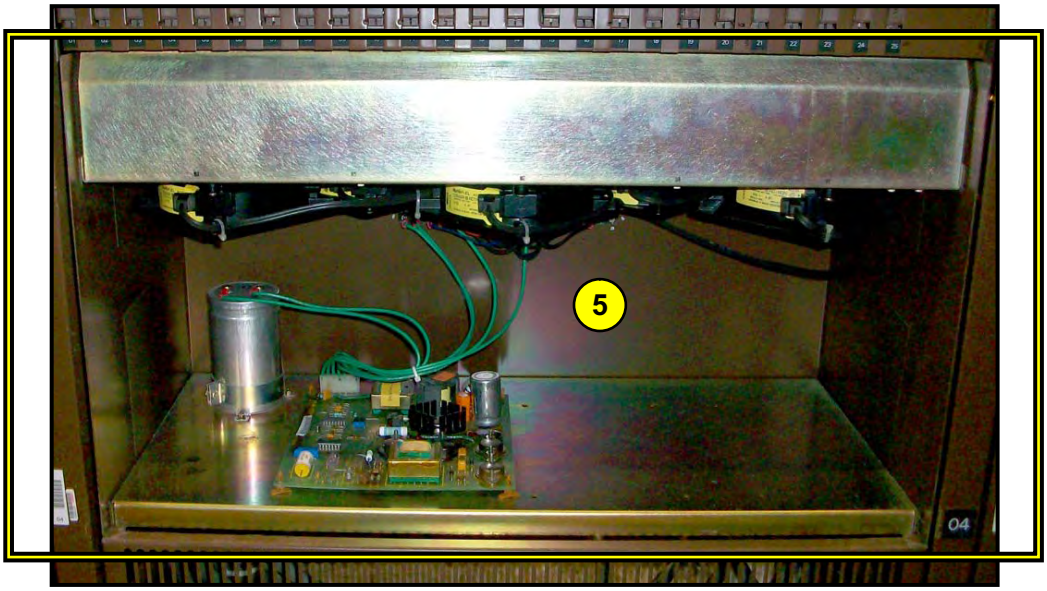
WARNING HIGH VOLTAGE: **Remove any fuses from the PDC before removing any NT3X90AA / NT3X90AB Fan Units that are being converted or bypassed.**

- **If working on NT3X90AB (first bay), remove & leave out fuse for wires 17 & 18.** *(power for these wires will no longer be needed)*
- **Remove alarm fuse (fuse # 5) in bay that is being worked on.**

5. **Remove the NT3X90AA Fan Unit from the Bay using standard DMS-100 removal procedures.**



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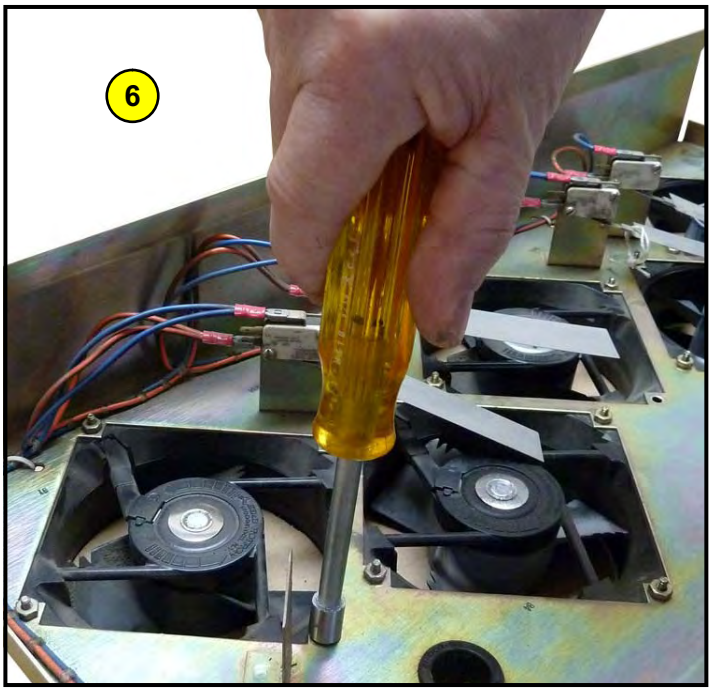
6. Remove the (5) OLD 24VAC fans from the Fan Tray:

Note: Support the fan from the bottom when removing the hardware to keep it from falling inside the fan unit.



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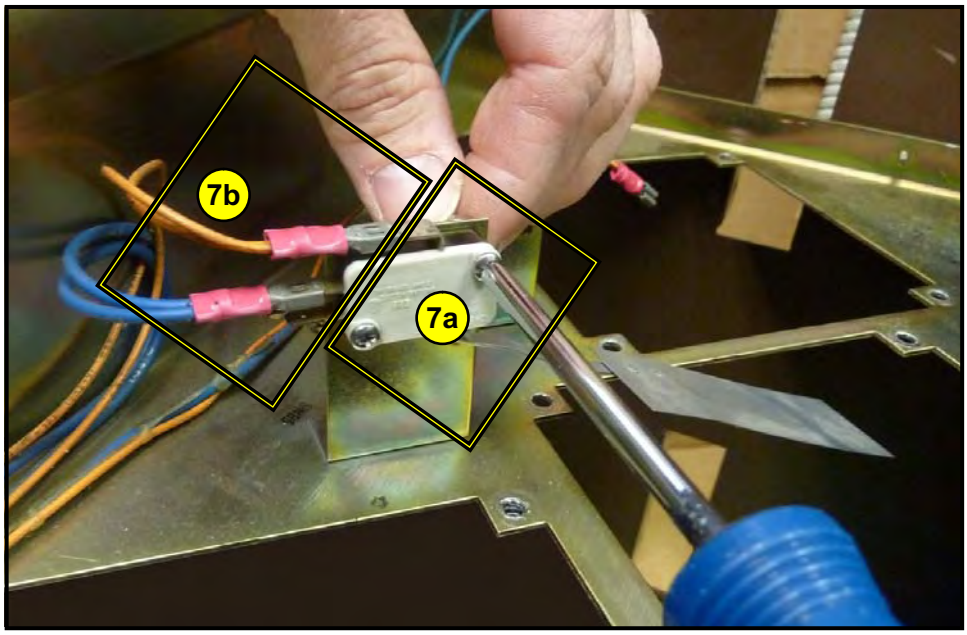
7. Remove the OLD Sensors from the top of the NT3X90AA Fan Tray:
(optional, if new sensors are needed)

a. Remove the (2) screws & nuts from the OLD sensor as shown.

b. Remove the (2) fastons from the power prongs on the OLD sensor.

Note: Do not remove the sensor wires from the fan tray or internal wiring block.
(They are needed for installation of new sensors)



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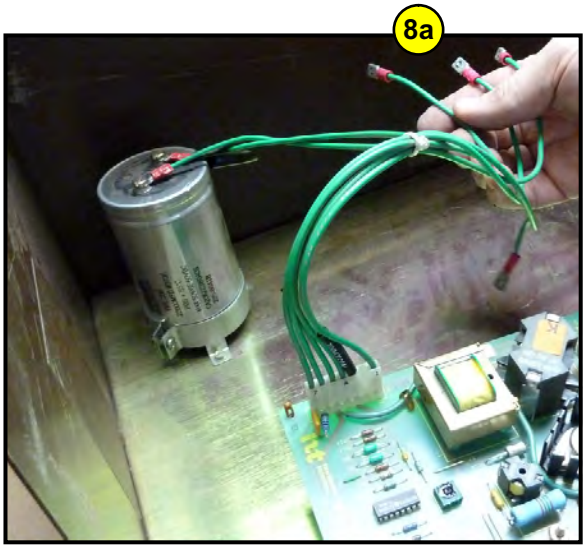
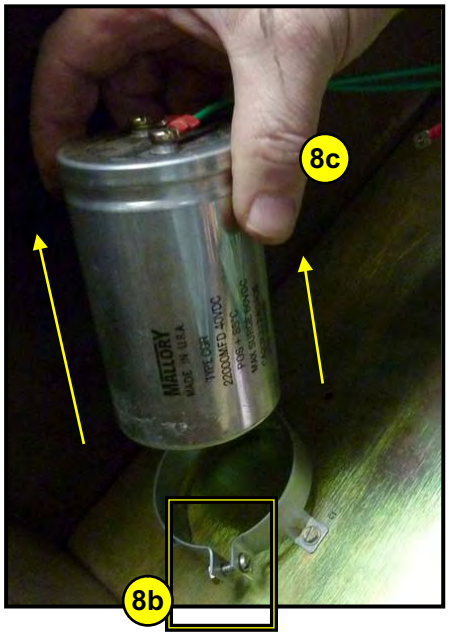
8. Remove the 24VAC Power Supply Unit:

a. Detach the fastons (green wires) connecting the power supply & capacitor from the internal wiring block on the DMS-100 fan unit as shown.



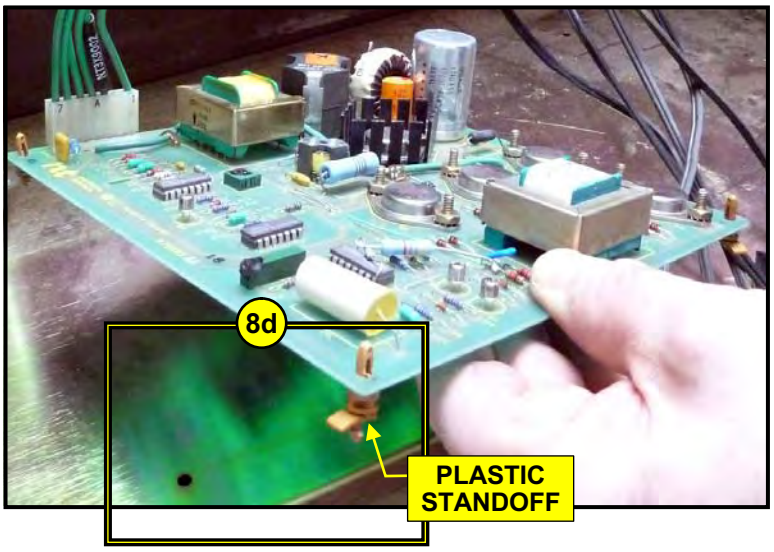


b. Loosen the screw on the capacitor bracket.

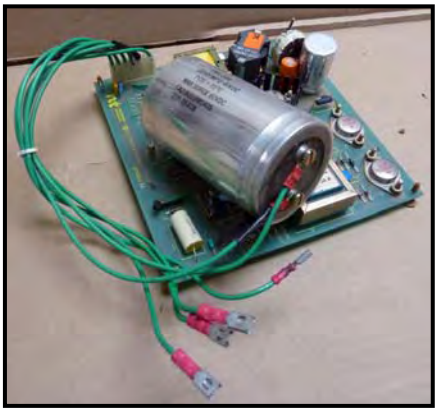
c. Remove the capacitor from the fan unit. *

* ***Caution:*** Capacitor may still have voltage present.

d. Remove the power supply unit (including the (4) plastic standoffs) from the fan tray.



24VAC POWER SUPPLY UNIT DETACHED FROM THE DMS-100 NT3X90AA FAN UNIT



Note: After the power supply unit is fully detached from the fan unit, it is no longer needed.

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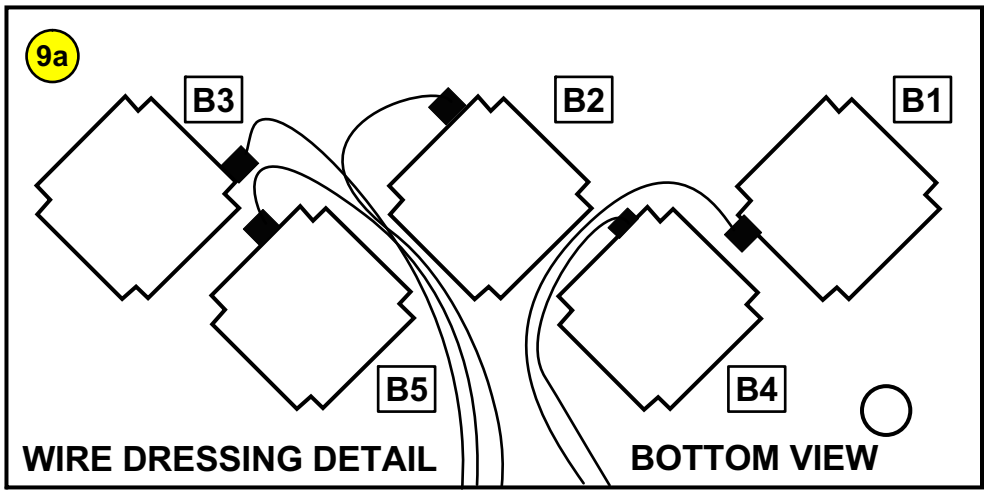
9. Install the (5) NEW 48VDC fans (# TF-DMS05P) to the Fan Tray:

a. Before installing the 48V fans, attach the included Wire Dressing label on the inside back wall (in a visible location) of the fan unit.

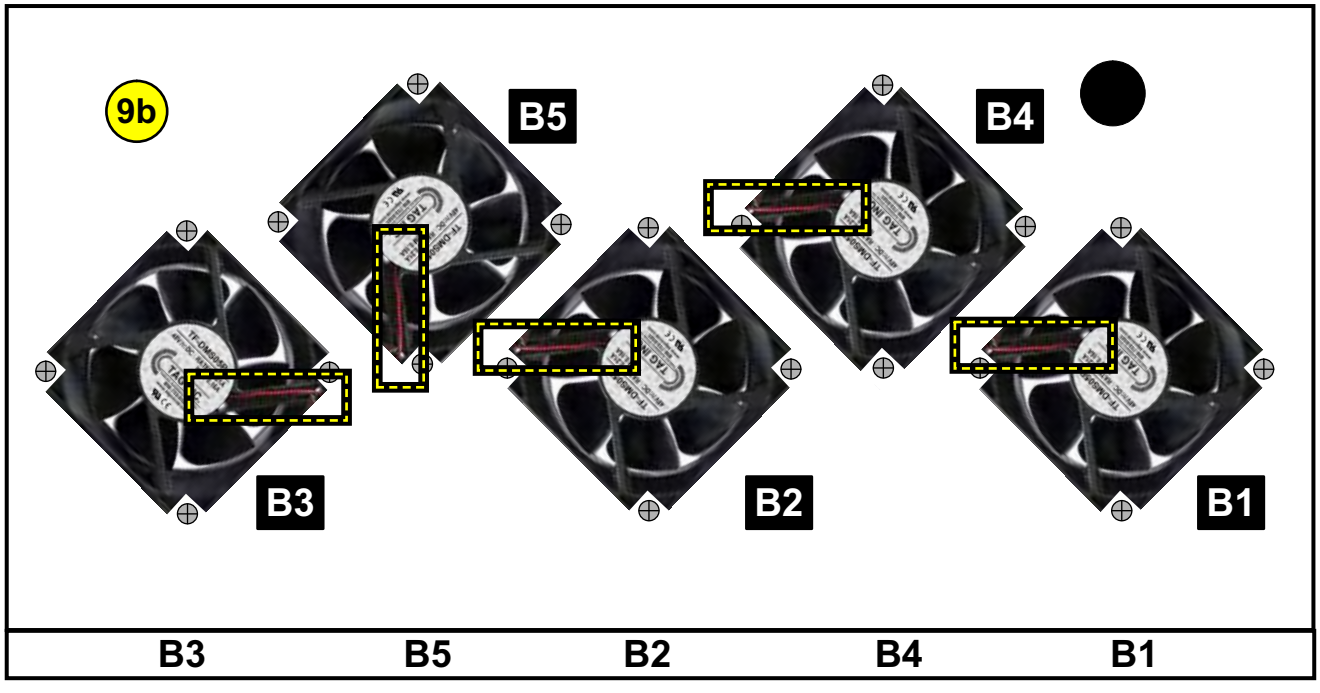
BOTTOM VIEW (INSIDE OF FAN UNIT)
(NOTE ORIENTATION OF THE FAN WIRES)



b. Attach the fans using the supplied self tapping screws. *(Does not require additional hardware)* See the diagram below for fan orientation.

Note: The airflow labels on the fans should point up.
(The model # should be visible from the top of the fan unit.)

TOP VIEW (OUTSIDE OF FAN UNIT)
(NOTE ORIENTATION OF THE FANS)



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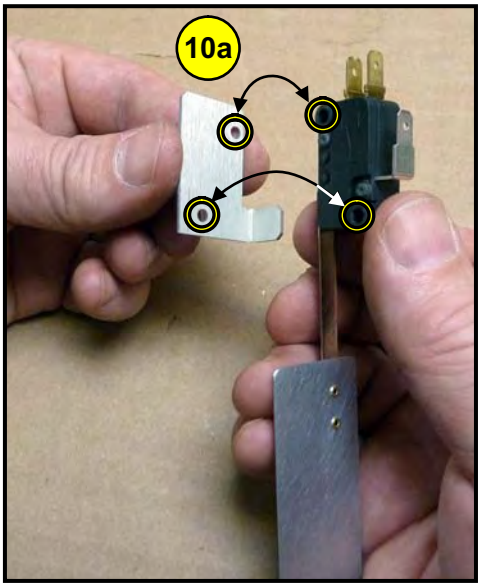
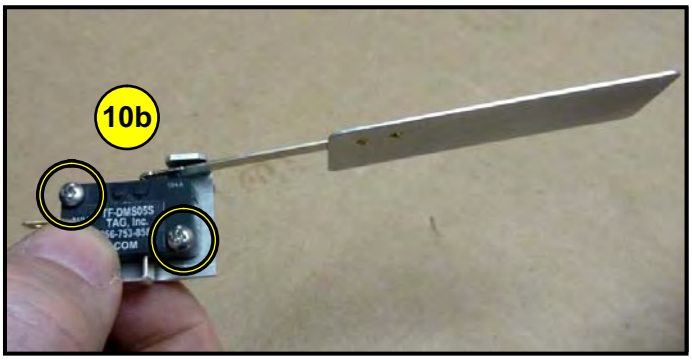
10. Install the NEW Sensors (PN # TF-DMS05S) to the Fan Tray: ***(optional, if new sensors are needed)***

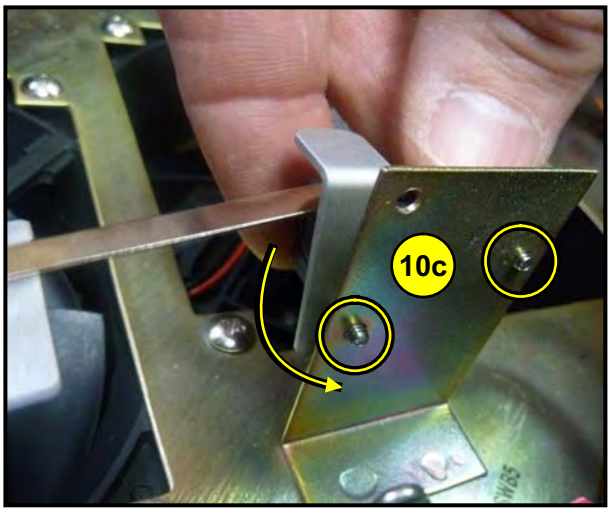


a. Place the metal mounting bracket on the NEW sensor as shown.

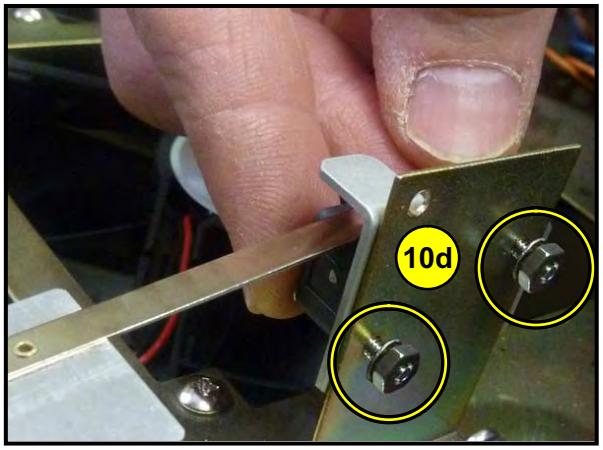
b. Holding the two pieces together, flip the sensor over & insert the (2) screws.

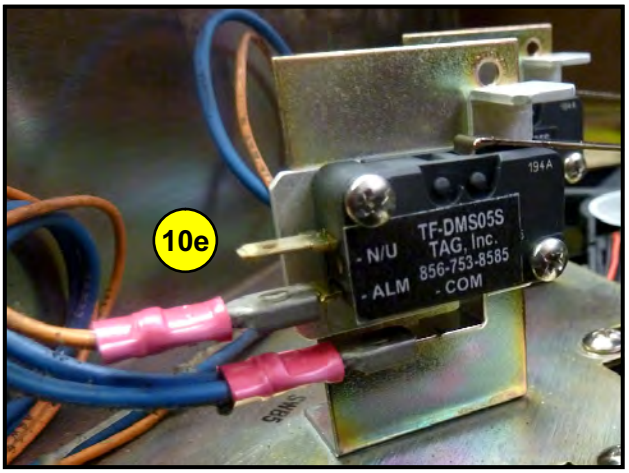


c. Guide the screws on the sensor into the holes on the mounting bracket of the fan tray as shown.



d. Install & tighten the hex nuts securing the sensor to the mounting bracket on the fan tray.





e. Connect the (2) existing fastons to the (2) lower power prongs on the sensor as shown.

(BLUE = COM, ORANGE = ALM)

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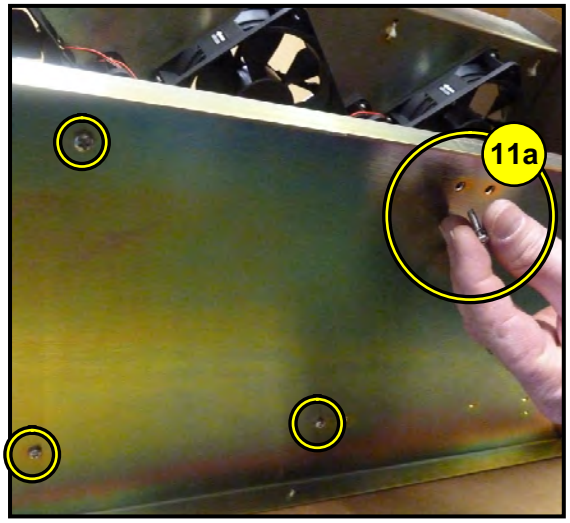
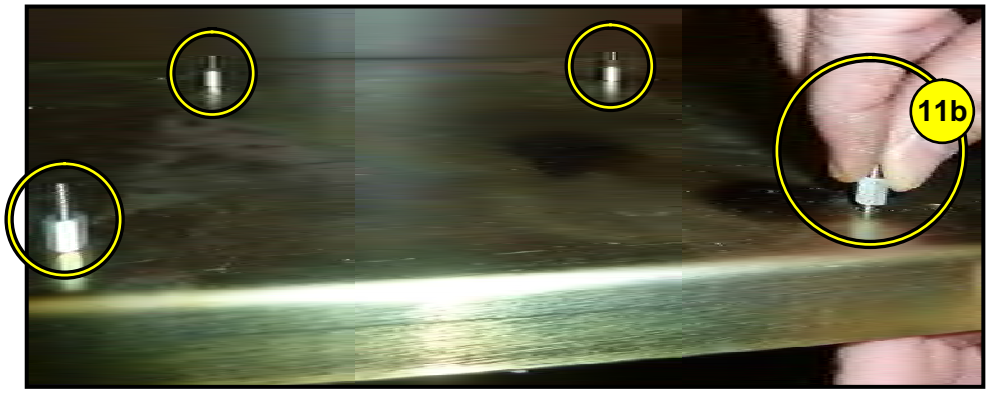
11. Install the NEW Fan Control Board to the Fan Unit:

(Lean the entire fan unit back to gain access to the bottom)

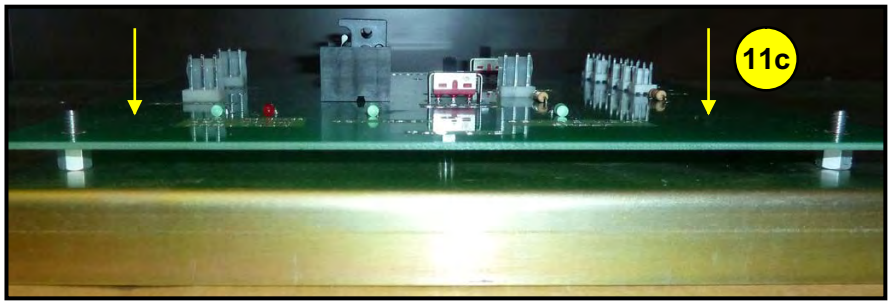


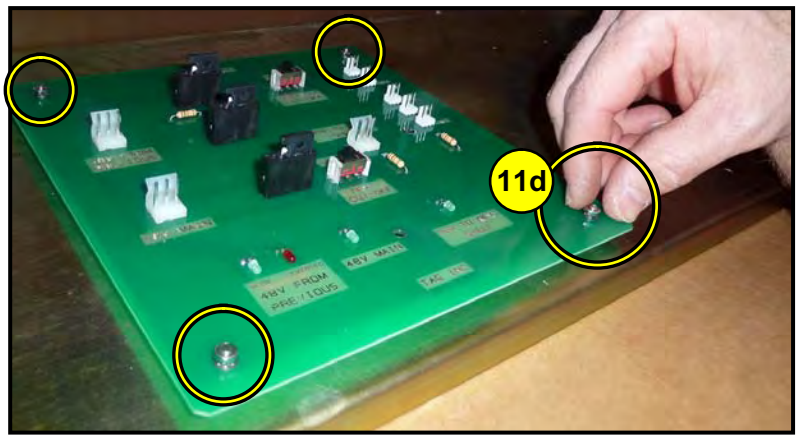
a. Install the (4) supplied standoff screws & lock washers through the existing holes located on the bottom of the fan unit.

b. While pressing the screw & lock washer up from the bottom with one hand, use your other hand to thread the standoff onto it. (Install in (4) places)



c. Place the NEW fan control board on top of the (4) standoffs.





d. Install the (4) supplied washers & hex nuts to secure the NEW fan control board to the bottom of the fan unit.

e. Attach the supplied schematic label to the empty space located on right of the fan control board.

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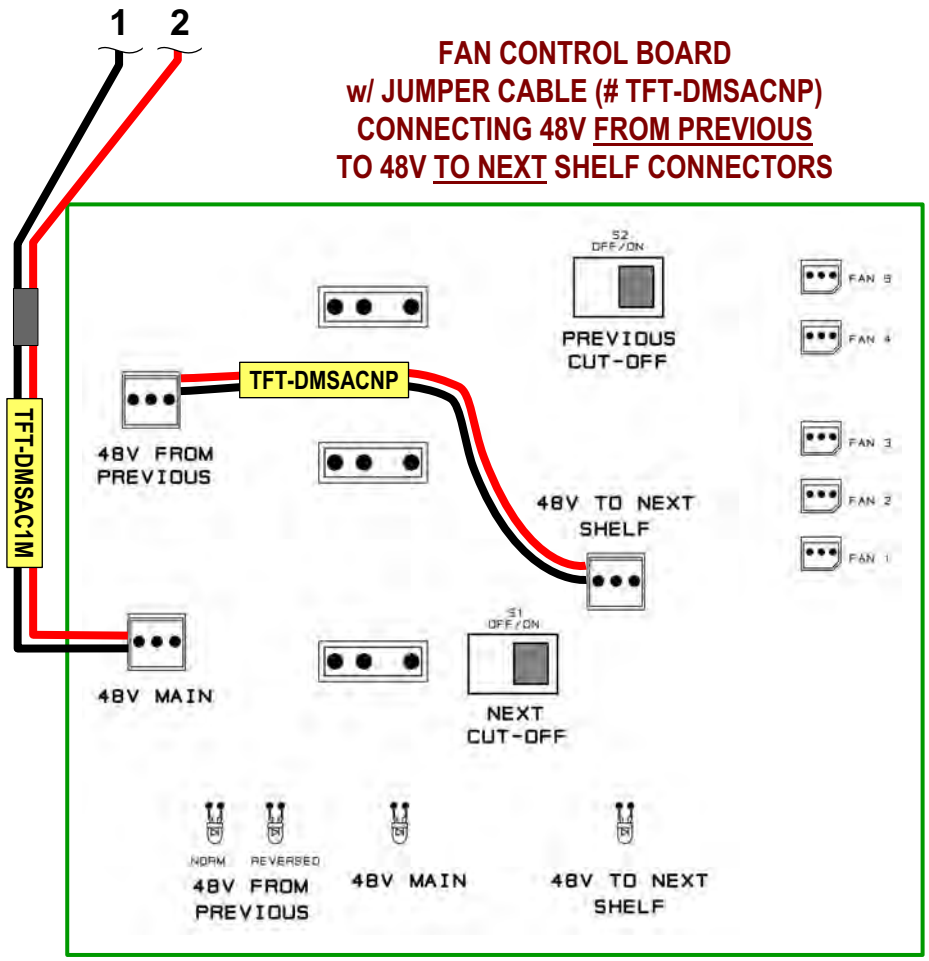
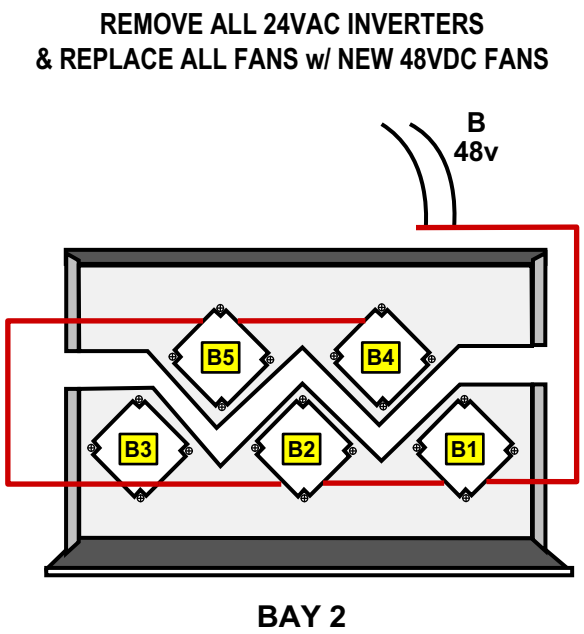
12. Single Unit 48VDC Conversion w/ (1) 24VAC Inverter:
(Fan tray unit will be in simplex power condition w/ this option)

Existing 48VDC wiring from PDC needed for each tray (1,2)

Connect single source jumper cable (# TFT-DMSACNP) from PREVIOUS connector to NEXT connector.

Note: Make sure that CUT-OFF switches are in the ON position





WARNING:
DO NOT CONNECT DC FEED TO FOLLOWING AC FAN TRAY.

DC FEED INTO AN AC FAN TRAY WILL SHORT EXISTING 24VAC FANS.

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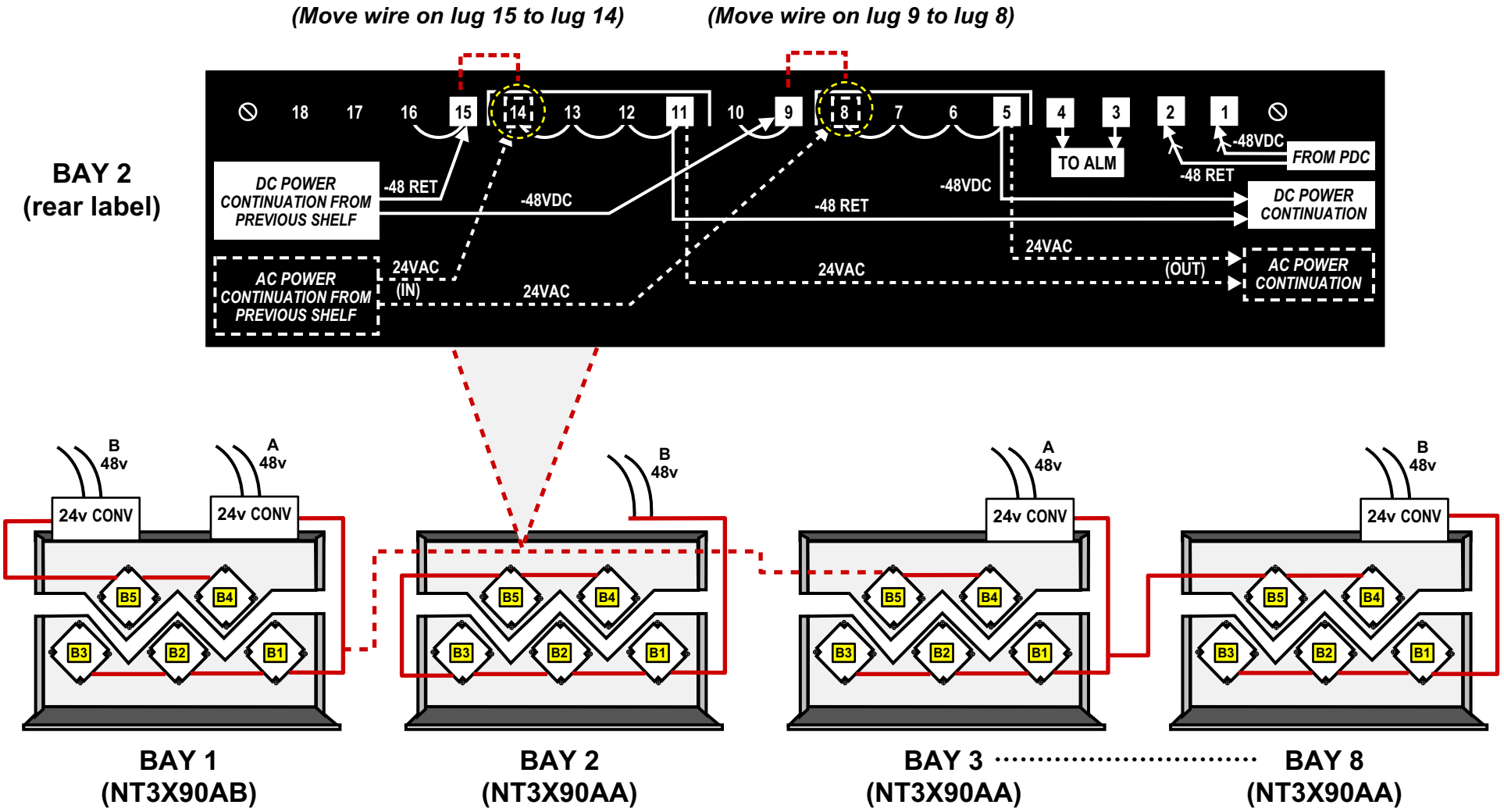
13. 24VAC Daisy Chain Bypass:

Bypass by moving (2) wires coming from previous shelf

WARNING:
DO NOT CONNECT DC FEED TO FOLLOWING AC FAN TRAY



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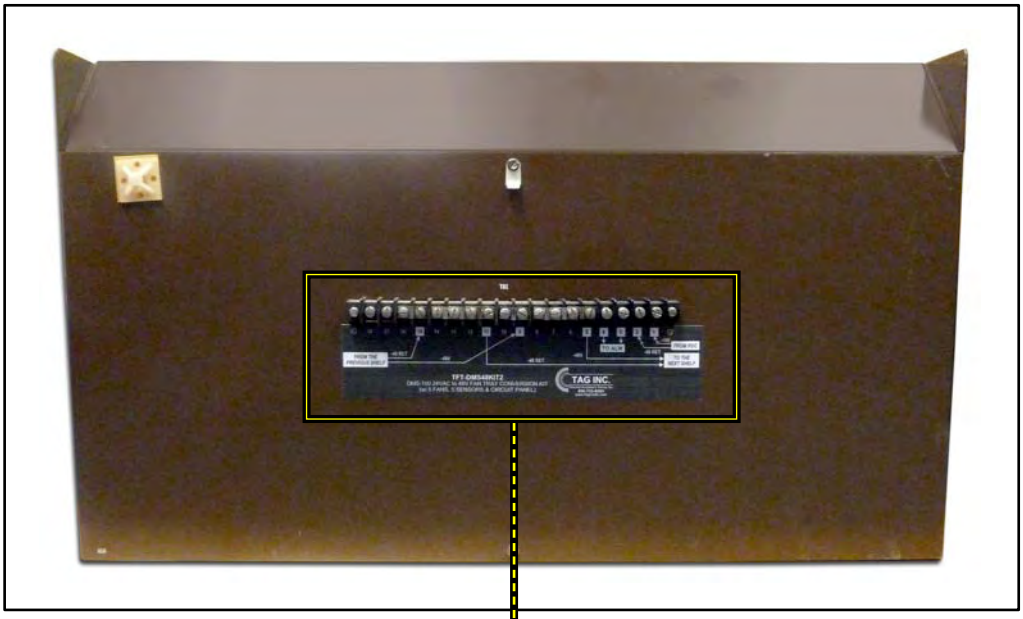
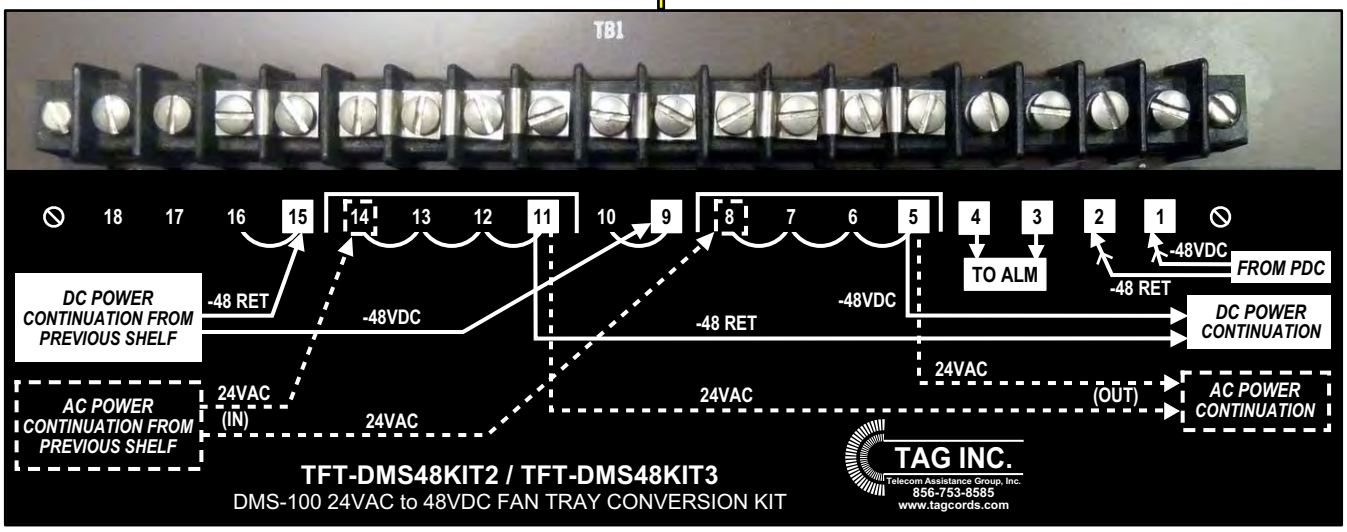
14. Attach the External Wiring Block Label to the Fan Unit: *

* ***Note:*** Label should be attached to the back side of the fan unit (black label, numbered 18-1) UNDER the External Wiring Block.





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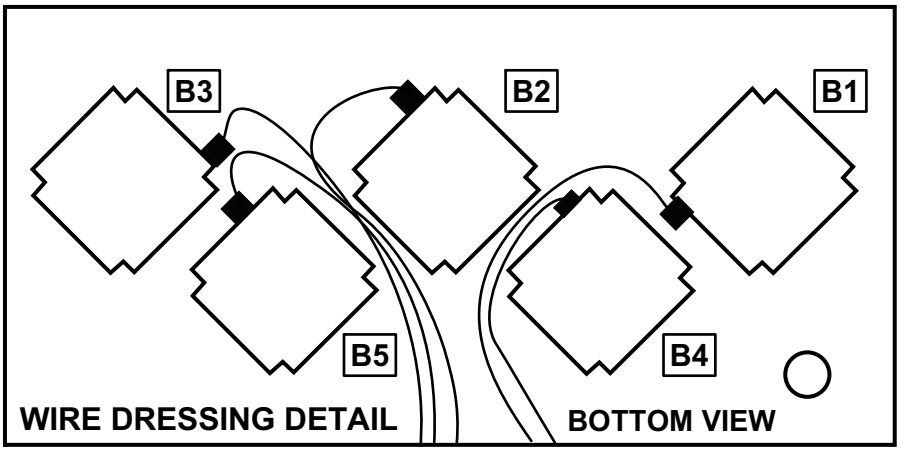
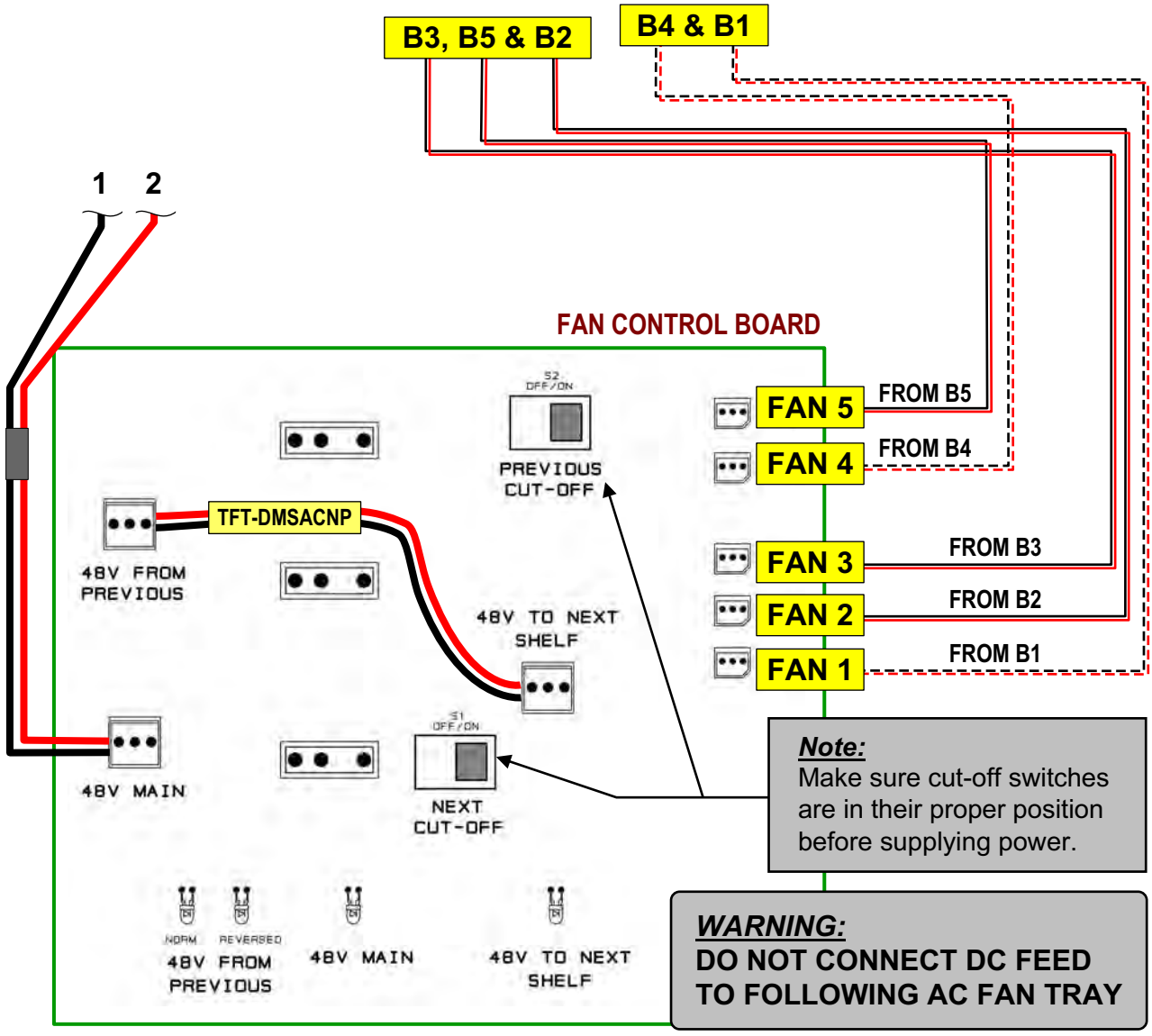
15. Install the Plugs from the NEW Fans to the Connectors on the NEW Fan Control Board:

Note: Secure ALL loose wires with supplied zip ties to prevent interference with fans.

BOTTOM (INSIDE) VIEW

(NOTE ORIENTATION OF THE FAN WIRES)





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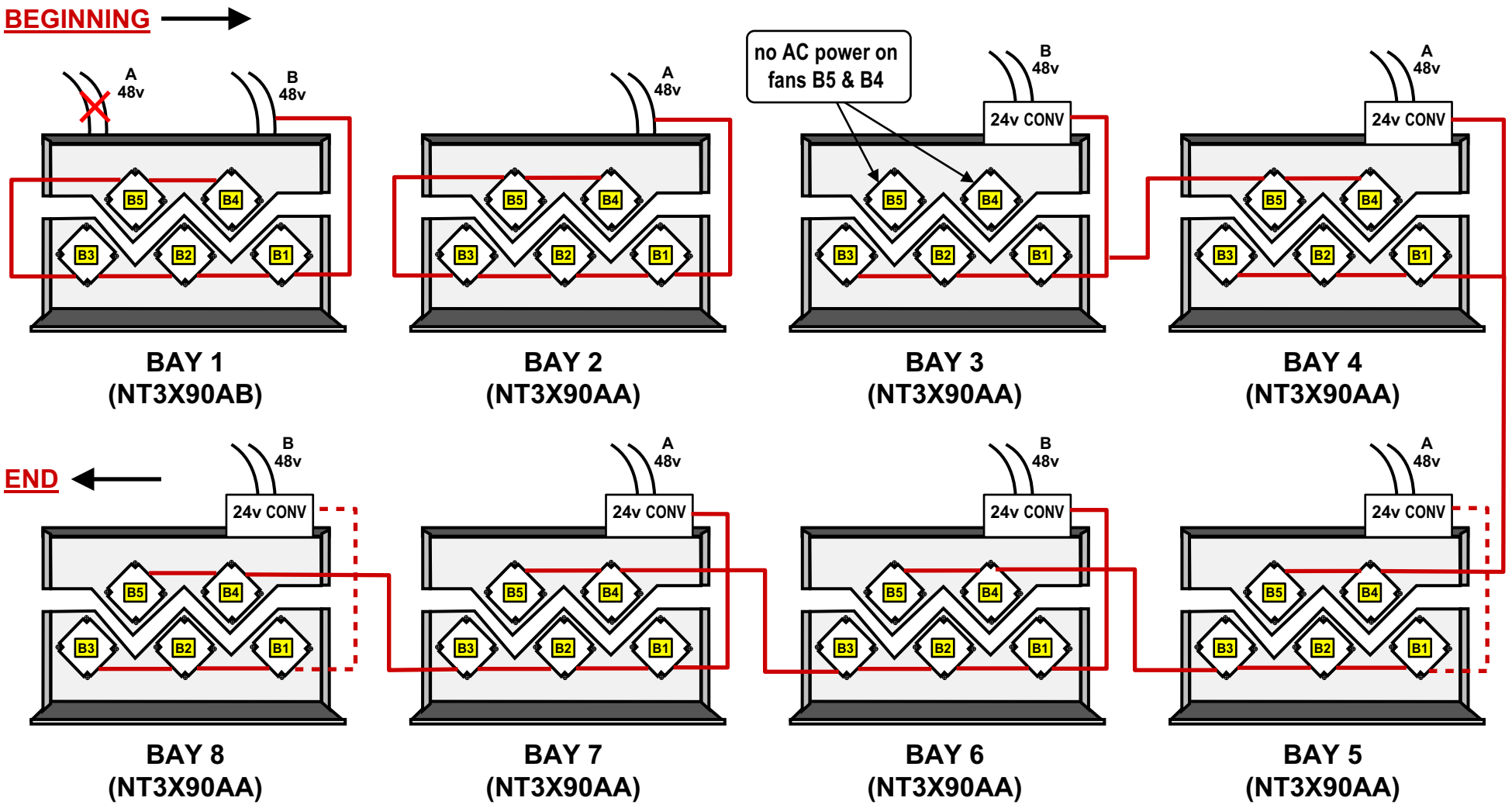
16. Isolated First & Second Bay Conversion Configuration:



Note: The diagram shows the beginning of the Daisy Chain that has been converted to 48V.
The (2) 24VAC Inverters in Bay 1 & (1) 24VAC Inverter in Bay 2 have been removed & converted to 48V.
((2) Fans is Bay 3 will be in alarm due to the removal of AC power in Bay 2)

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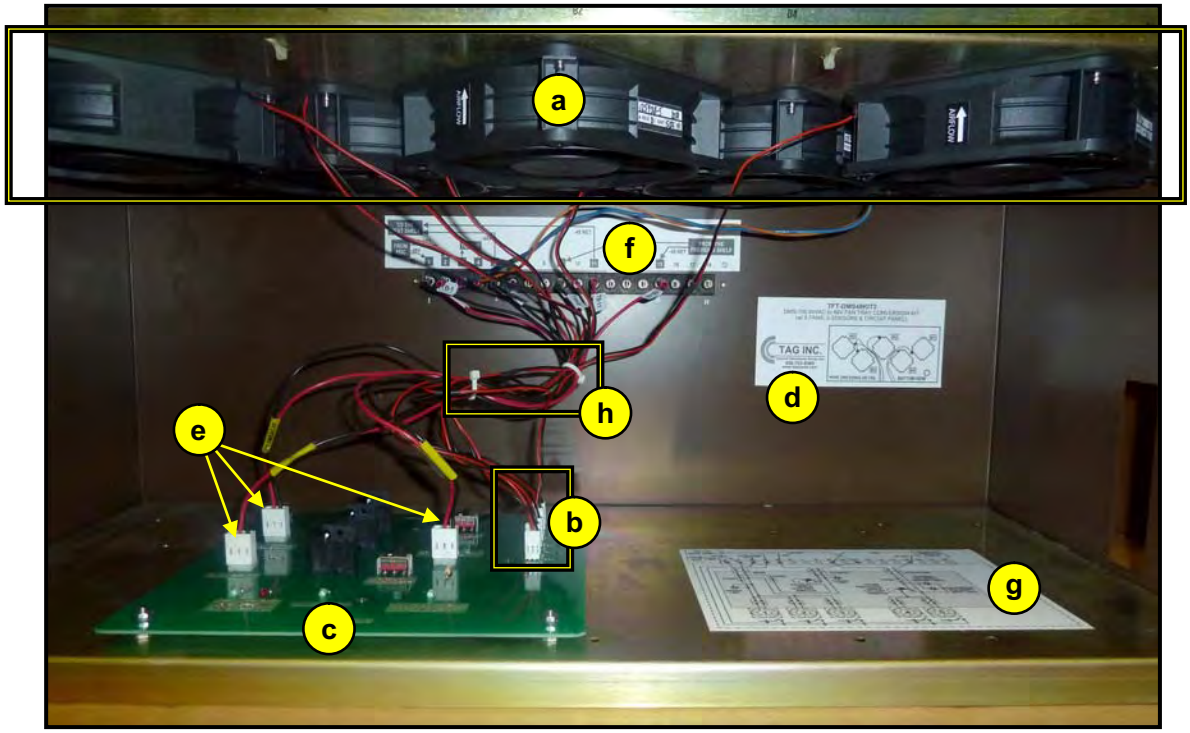
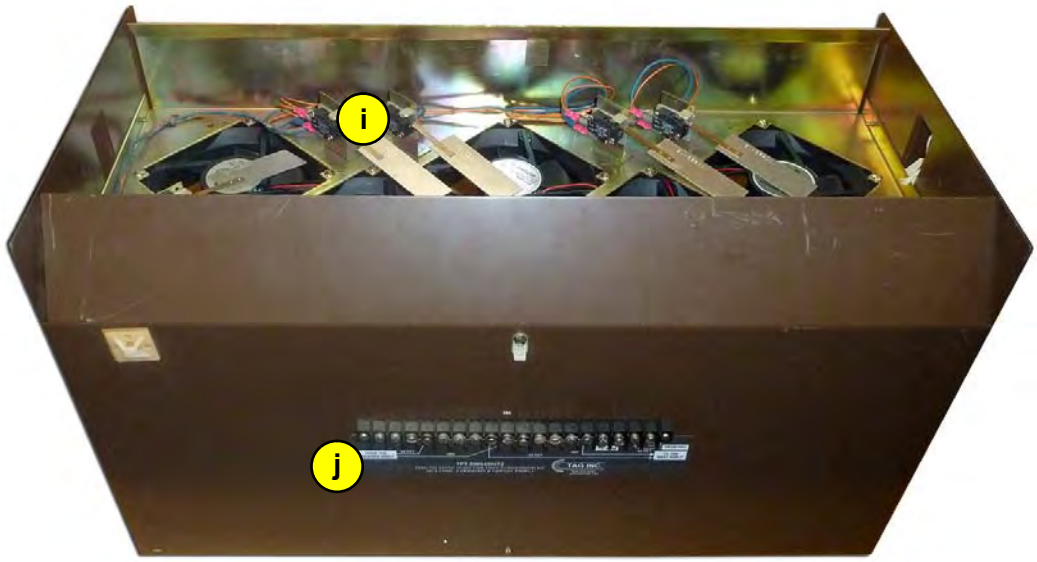
17. Fan Unit Conversion Reference Guide:

- **a.** (5) NEW 48VDC Fans
- **b.** Fan Cables
- **c.** NEW Fan Control Board
- **d.** Wire Dressing Label
- **e.** (3) Power Lead Cables
- **f.** Internal Wiring Block Label (white)
- **g.** Fan Control Board Schematic Label
- **h.** Zip Ties
- **i.** (5) NEW Sensors (optional)
- **j.** External Wiring Block Label (black)

INSIDE VIEW OF FAN CONVERSION



OUTSIDE VIEW OF FAN CONVERSION



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18. End of Installation Procedure

a. After reinstalling fan tray, install fuses & verify that the fans are running without alarms.

- If there are alarms, see below.

b. If all fans are not running:

- Check fuse at PDC & fuses on fan control board.
- Verify that cut-off switches are in the correct position.

c. If fan alarm is present:

- Check all fans.
- Check fan sensor wiring.
- Check fan sensor fuse # 5.

d. If red & green LEDs on the fan controller are lit:

- Check wiring TO & FROM NEXT SHELF to make sure they are not reversed.

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